Claims

[c1]   1. A method of identifying key video frames in a se-
quence of image frames, each of said sequence of image
frames containing a plurality of pixels, each of said plu-
rality of pixels corresponding to a corresponding point
of an area based on which said sequence of image
frames are generated, said method comprising:
determining a rate of change of visual content of each
current frame from a corresponding reference frame,
each of said current frame and said reference frame be-
ing comprised in said sequence of image frames; and
selecting said current frame as a key video frame if said
rate exceeds a first threshold value.

[c2]   2. The method of claim 1, wherein said determining
comprises:
determining a displacement magnitude of each moved
pixel of said current frame compared to the position in
said reference frame;
computing a representative magnitude of said displace-
ment magnitude for said moved pixels of said current
frame; and
selecting said current frame as said key video frame if

said representative magnitude exceeds a second threshold value.

[c3]   3. The method of claim 2, wherein said representative magnitude comprises an average of motion energy vector magnitude of said moved pixels of said current frame.

[c4]   4. The method of claim 3, wherein said rate is computed from said average motion energy vector magnitude.

[c5]   5. The method of claim 4, wherein said first threshold and said second threshold are adjusted dynamically to ensure that a desired number of frames are selected as key video frames in a specified duration.

[c6]   6. The method of claim 4, further comprising identifying a plurality of active pixels in said current frame, wherein a pixel is considered an active pixel if a corresponding displacement magnitude is outside of a range, wherein only said plurality of active pixels are used by said computing.

[c7]   7. The method of claim 6, wherein said range set by a distance of two times the variance from the mean of a distribution.

[c8]   8. The method of claim 6, wherein said representative

magnitude comprises an average of said active pixels.

[c9]   9. The method of claim 6, further comprising:
enabling a user to specify one of a plurality of key video frames, wherein said plurality of key video frames are selected by said selecting; and
displaying said specified one of said plurality of key video frames.

[c10]   10. The method of claim 9, further comprising:
displaying a prior key video frame and a next key video frame in relation to said specified one of said plurality of key video frames, wherein said prior key video frame and said next key video frame are comprised in said plurality of key video frames.

[c11]   11. The method of claim 10, further comprising:
generating a display indicating the manner in which said plurality of key video frames are interspersed in said sequence of image frames, wherein said enabling is based on said display.

[c12]   12. The method of claim 11, wherein said display comprises a pie chart.

[c13]   13. The method of claim 10, further comprising:
generating a display listing said plurality of key video frames, wherein said enabling is based on said display.

[c14]   14. The method of claim 13, wherein said display comprises a button, which when selected, causes said display to be generated.

[c15]   15. The method of claim 1, wherein said reference frame comprises an adjacent frame.

[c16]   16. A computer readable medium carrying one or more sequences of instructions for causing a processing system to identify key video frames in a sequence of image frames, each of said sequence of image frames containing a plurality of pixels, each of said plurality of pixels corresponding to a corresponding point of an area based on which said sequence of image frames are generated, wherein execution of said one or more sequences of instructions by one or more processors contained in said processing system causes said one or more processors to perform the actions of:
determining a rate of change of visual content of each current frame from a corresponding reference frame, each of said current frame and said reference frame being comprised in said sequence of image frames; and selecting said current frame as a key video frame if said rate exceeds a first threshold value.

[c17]   17. The computer readable medium of claim 16, wherein

said determining comprises:

determining a displacement magnitude of each moved pixel of said current frame compared to the position in said reference frame;

computing a representative magnitude of said displacement magnitude for said moved pixels of said current frame; and

selecting said current frame as said key video frame if said representative magnitude exceeds a second threshold value.

[c18]   18. The computer readable medium of claim 17, wherein said representative magnitude comprises an average of motion energy vector magnitude of said moved pixels of said current frame.

[c19]   19. The computer readable medium of claim 18, wherein said rate is computed from said average motion energy vector magnitude.

[c20]   20. The computer readable medium of claim 19, wherein said first threshold and said second threshold are adjusted dynamically to ensure that a desired number of frames are selected as key video frames in a specified duration.

[c21]   21. The computer readable medium of claim 19, further

comprising identifying a plurality of active pixels in said current frame, wherein a pixel is considered an active pixel if a corresponding displacement magnitude is outside of a range, wherein only said plurality of active pixels are used by said computing.

[c22] 22. The computer readable medium of claim 21, wherein said range set by a distance of two times the variance from the mean of a distribution.

[c23] 23. A digital processing system identifying key video frames in a sequence of image frames, each of said sequence of image frames containing a plurality of pixels, each of said plurality of pixels corresponding to a corresponding point of an area based on which said sequence of image frames are generated, said digital processing system comprising:

means for determining a rate of change of visual content of each current frame from a corresponding reference frame, each of said current frame and said reference frame being comprised in said sequence of image frames; and

means for selecting said current frame as a key video frame if said rate exceeds a first threshold value.

[c24] 24. The digital processing system of claim 23, wherein said means for determining is operable to:

determine a displacement magnitude of each moved pixel of said current frame compared to the position in said reference frame;

compute a representative magnitude of said displacement magnitude for said moved pixels of said current frame; and

select said current frame as said key video frame if said representative magnitude exceeds a second threshold value.

[c25] 25. The digital processing system of claim 24, wherein said representative magnitude comprises an average of motion energy vector magnitude of said moved pixels of said current frame.

[c26] 26. The digital processing system of claim 25, wherein said rate is computed from said average motion energy vector magnitude.

[c27] 27. The digital processing system of claim 26, wherein said first threshold and said second threshold are adjusted dynamically to ensure that a desired number of frames are selected as key video frames in a specified duration.

[c28] 28. The digital processing system of claim 26, further comprising means for identifying a plurality of active

pixels in said current frame, wherein a pixel is considered an active pixel if a corresponding displacement magnitude is outside of a range, wherein only said plurality of active pixels are used by said computing.